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STUDENTS' VIEWS OF THEIR COLLEGE ENVIRONMENT.

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AN INVESTIGATION OF ONE COLLEGE COMMUNITY WAS UNDERTAKEN, FOCUSING ON THE STUDENTS' VIEWS OF THE COLLEGE ENVIRONMENT, PERSONALITY NEEDS, AND ACADEMIC ACHIEVEMENT, AND ATTEMPTING TO LOCATE SOME ANTECEDENT AND CONCURRENT CORRELATES OF THESE FACTORS. THE TEST INSTRUMENTS USED WERE THE "ACTIVITIES INDEX" (AI) BY STERN AND THE "COLLEGE CHARACTERISTICS INDEX" (CCI) BY PACE AND STERN. THE AI WAS USED TO MEASURE PERSONALITY NEEDS, SCORED ON FACTORS OF INTELLECTUAL ORIENTATION, DEPENDENT NEEDS, EMOTIONAL EXPRESSION, AND EDUCABILITY. THE CCI WAS USED TO MEASURE STUDENT VIEWS OF THE COLLEGE ENVIRONMENT, SCORED ON FACTORS OF INTELLECTUAL CLIMATE AND NONINTELLECTUAL CLIMATE. DATA ANALYSIS WAS COMPLETED IN THREE STAGES--(1) RESPONDENTS WERE COMPARED WITH NONRESPONDENTS ON ALL POSSIBLE CATEGORICAL AND QUANTITATIVE VARIABLES TO ASSESS ALL POSSIBLE SOURCES OF SAMPLING BIAS, (2) THE RELATIONSHIPS AMONG QUANTITATIVE VARIABLES WERE ASSESSED BY MEANS OF THE "PEARSON PRODUCT-MOMENT CORRELATION," AND (3) SIMPLE, RANDOMIZED ANALYSES WERE PERFORMED ON THE RELATIONSHIPS AMONG ALL STUDY VARIABLES. RESULTS INDICATED THAT RESPONDENTS WERE MORE LIKELY TO BE FEMALES, FRESHMEN, AND SORORITY MEMBERS, WHILE NONRESPONDENTS WERE MORE LIKELY TO BE BUSINESS MAJORS AND FRATERNITY MEMBERS. MALES HAD HIGHER INTELLECTUAL ORIENTATION NEEDS THAN FEMALES, AND SCIENCE MAJORS HELD THE HIGHEST INTELLECTUAL ORIENTATION NEEDS. FEMALES HAD HIGHER DEPENDENCY NEEDS AND HIGHER EMOTIONAL EXPRESSION NEEDS THAN MALES. ADDITIONAL RESULTS AND CONCLUSIONS WERE REPORTED. (HB)

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STUDENTS' VIEWS OF THEIR COLLEGE ENVIRONMENT

Cooperative Research Project No. 2169

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Garden City, New York

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CHAPTER I

INTRODUCTION

Brief statement of the problem

It has recently become recognized, and appreciated to a greater degree, that the effects of higher education are intimately bound up with the environment for learning provided by the institution. Stern (1962) has recently summarized work by himself and his colleagues demonstrating wide differences among institutions in the climate for learning provided. Thistlethwaite (1959, 1960, 1962) has shown how these differences can be instrumental in the vocational choice and achievement of students. These works, demonstrating the importance of studying the college environment, have concerned themselves principally with breadth, looking at differences among a variety of institutions. This study is concerned with depth, surveying one college community in detail, attempting to study the development of the views of the characteristics of the environment, and locating some correlates of these views.

Objectives

There were four principal lines of inquiry which were pursued in this study, each of which will be discussed in detail following a brief overview. The first goal was to study the development of the students' views of the characteristics of the college environment and his personality needs through the college years, identifying important correlates wherever possible. The second goal was to study the relationships among these views, needs and various background factors. The third goal was to study possible antecedent influences upon these views and needs. Finally, the relationship of these views, needs and background factors to success in college was studied.

The basic goal was to study the development of a realization on the part of the student of the unique characteristics of the college environment. We attempted to highlight the nature of change from the freshman to the senior year, and how these changes may have varied with exposure to the college community (city vs. dormitory residence), area of academic interest (chosen major area), and sex. Each student comes to college with an expectation of college life which is modified by many ecological and demographic variables, of which those studied were considered likely to be preeminent. Both personality needs and the press of the community were studied through time, and in their relationship to the forementioned ecological and demographic variables. Possible antecedent conditions were also studied in their relationship to these variables. Finally, the extent to which all of these factors relate to achievement, as measured by grade point average (GPA), was studied.

Related research

The two major projects which relate to this research are the work of the Pace and Stern group at Syracuse University and the Mellon Foundation project at Vassar College. Each of these will be discussed in turn.

The work by Pace, Stern and their associates has led to the development of the two major measuring instruments to be employed in this project. The College Characteristics Index (CCI; Pace and Stern, 1958) was used to assess the students' views of the college environment, and the Activities Index (AI; Stern, Stein and Bloom, 1956) was used as a measure of student needs. The construct validity of these techniques has been built by a variety of studies most recently summarized by Stern (1962). Foremost among these is a study reported separately (Stern, unpublished) in which 32 schools of a variety of orientations (liberal arts, technical, denominational, university) were compared as to the needs of the students and the press of the environment. It was demonstrated that students were more nearly alike across these categories than were institutions, although each student body was more compatible with the press of its own institution than it would have been with any other institution. Other investigators have used these instruments, both of which are based on Murray's (1938) need-press system, with good results. For example, Thistlethwaite has found that faculty press, as measured by the CCI, relates to the productivity of undergraduate colleges (1959), the plans of students for fields of graduate study (1960), and the decisions of students to seek graduate study (1962).

The Vassar studies, which have been summarized in Sanford (1962), can be contrasted with the Pace and Stern studies on two important counts. First of all, one college was studied in great depth rather than many colleges being compared on more limited measures. Secondly, the emphasis seemed to be placed on student characteristics and achievement to a greater extent, and more rigorously, than on ecological characteristics of the environment. These studies showed that a number of important changes occur in students during their passage through college (Freedman, 1956). This finding accentuates the importance of a developmental study, as changes are likely to be associated with class standing. While this does seem to contradict the essential position of the Jacob (1957) report, Jacob does indicate that where change occurs it is likely to be in a few "potent" liberal arts colleges, which possess distinctive climates, and apparently Vassar is one of these.

Another important relevant study, although perhaps more so in philosophy than content, was that of Newcomb (1943). This work demonstrated that an understanding of the ecology of a college community was essential to the understanding of changes in the student body. Newcomb's (1961) attention to propinquity as an important source of attitude change is also reflected in the study of variables concerned with the place of residence of the students.

This project, then, represents a convergence between the Pace and Stern studies and the Vassar studies. Where the largest group reported from any one school in the Pace and Stern work was 128, all of whom were upperclassmen, this study applies their technique to 821 students drawn from the entire undergraduate population. The Vassar studies, which shared this approach in depth, did not share the explicit concern with characteristics of the college environment and their relationship to the needs of the students as well as achievement.

General statement of hypotheses

Stated most broadly, and in the null hypothesis form, the hypotheses to be investigated are:

A. Students' views of the college environment do not change during their college experience.

B. Students' personality needs do not change during their college experience.

C. There are no relationships among these views and needs and Scholastic Aptitude Test (SAT) scores, sex, major area of study, fraternity or sorority membership, place of residence and high school performance.

D. None of the factors cited in Hypothesis C relate to achievement in college.

CHAPTER II

PROCEDURES

Test Instruments

The College Characteristics Index (CCI) and the Activities Index (AI) are parallel paper and pencil instruments. Each consists of 300 items in the form of simple statements. The statements in the CCI refer to characteristics of the college environment, to which the student responds "True" or "False" on a separate scoring sheet. The AI statements describe a variety of activities which the student marks either "Like" or "Dislike", again using a separate scoring sheet.

There are many different levels on which to evaluate a set of responses to either or both of these inventories. The most simple involves an item-by-item analysis. Stern (1962) has constructed a series of paragraphs descriptive of different schools, based on a collection of CCI items endorsed by a substantial proportion of students at those schools. This approach seems more attuned to an anecdotal approach than a more sophisticated statistical analysis.

The most frequently used approach to scoring these inventories utilizes a set of 30 scales of ten items each, constructed on a logical rather than empirical basis. The AI scales and CCI scales were constructed to reflect parallel need-press dimensions. Those scales are listed in Table 1. While the compelling simplicity of these scales has led to their widespread use, a number of methodological problems have suggested the necessity for the development of more refined, empirically based scores. Among these problems are the _a priori_ nature of the item categorization, the limited reliability of some of the scales, and the brevity of the scales, which leads, in some cases, to a disproportionate contribution to scale score variance by one or two discriminant items.

These problems have led to an attempted solution via factor analysis. A number of analyses have produced somewhat different factor structures. The one chosen for use in this study is the analysis reported by Stern (1963) in a preliminary manual for the AI and CCI. An initial principal components-equamax analysis extracted twelve first-order AI factors and eleven first-order CCI factors. Refactoring yielded four second-order AI factors and two second-order CCI factors. Results of the second-order factor analysis provided the basis of the scores utilized in this study, and these, along with the initial factor structure, will be discussed separately for each of the tests in turn.

College Characteristics Index

First-order factor analysis of the CCI extracted eleven factors, which will be briefly outlined below. The scales contained in these factors are recorded in Table 2. The factors,

TABLE 1

NEED (AI) - PRESS (CCI) SCALE DEFINITIONS

	Scales	Definitions
1.	Abasement - Assurance	Self-depreciation vs. self-confidence
2.	Achievement	Striving for success through personal effort
3.	Adaptability-Defensiveness	Acceptance of criticism vs. resistance to suggestion
4.	Affiliation-Rejection	Friendliness vs. unfriendliness
5.	Aggression - Blame Avoidance	Hostility vs. its inhibition
6.	Change - Sameness	Flexibility vs. routine
7.	Conjunctivity - Disjunctivity	Planfulness vs. disorganization
8.	Counteraction - Inferiority Avoidance	Restriving after failure vs. withdrawal
9.	Deference - Restiveness	Respect for authority vs. rebelliousness
10.	Dominance - Tolerance	Ascendancy vs. forbearance
11.	Ego Achievement	Striving for power through social action
12.	Emotionality - Placidity	Expressiveness vs. restraint
13.	Energy - Passivity	Effort vs. inertia
14.	Exhibitionism - Inferiority Avoidance	Attention-seeking vs. shyness
15.	Fantasied Achievement	Daydreams of extraordinary public recognition
16.	Harm Avoidance - Risk-taking	Fearfulness vs. thrill-seeking
17.	Humanities, Social Science	Interests in the Humanities and the Social Sciences
18.	Impulsiveness - Deliberation	Impetuousness vs. reflection

	Scales	Definitions
19.	Narcissism	Vanity
20.	Nurturance - Rejection	Helping others vs. indifference
21.	Objectivity - Projectivity	Detachment vs. superstition (AI) or suspicion (CCI)
22.	Order - Disorder	Compulsive organization of details vs. carelessness
23.	Play - Work	Pleasure - seeking vs. purposefulness
24.	Practicalness - Impracticalness	Interest in practical activities vs. indifference
25.	Reflectiveness	Introspective comtemplation
26.	Science	Interests in the Natural Sciences
27.	Sensuality - Puritanism	Interest in sensory and esthetic experiences
28.	Sexuality - Prudishness	Heterosexual interests vs. their inhibition
29.	Supplication - Autonomy	Dependency vs. self-reliance
30.	Understanding	Intellectuality

From Stern (1963)

TABLE 2

SCALES CONTAINED IN FIRST-ORDER CCI FACTORS

Factor	Scales
1. Aspiration Level	Counteraction, Change, Fantasied Achievement, Understanding
2. Intellectual Climate	Reflectiveness, Humanities-Social Sciences, Sensuality, Understanding, Fantasied Achievement
3. Student Dignity	Objectivity, Assurance*,Tolerance*
4. Academic Climate	Humanities - Social Sciences, Science
5. Academic Achievement	Achievement, Energy, Understanding, Counteraction, Conjunctivity
6. Self - Expression	Ego Achievement, Emotionality, Exhibitionism, Energy
7. Group Life	Affiliation, Supplication, Nurturance, Adaptability
8. Academic Organization	Blame Avoidance*, Order, Conjunctivity, Deliberation,* Deference, Narcissism
9. Social Form	Narcissism, Nurturance, Adaptability, Dominance, Play
10. Play - Work	Sexuality, Risktaking,* Play, Impulsiveness
11. Vocational Climate	Practicalness, Puritanism,* Deference, Order, Adaptiveness

---

*Scales marked by an asterisk are the reversed form of the conventionally scored scale, and are computed by subtracting the initial raw score from ten (the maximum scale score).

From Stern (1963)

along with statements describing schools with high scores on each factor, are:

Factor 1. Aspiration Level - The college encourages students to set high standards for themselves by such means as valuing their contributions to the school and providing models of achievement for them to emulate.

Factor 2. Intellectual Climate - There is a high quality of staff and physical plant concerned specifically with scholarly activities in the humanities, arts and social sciences.

Factor 3. Student Dignity - The college attempts to preserve student freedom and maximize personal responsibility.

Factor 4. Academic Climate - The school possesses academic excellence in staff and facilities in the conventional areas of the natural sciences, social sciences and the humanities.

Factor 5. Academic Achievement - The college sets high standards of achievement for their students.

Factor 6. Self-Expression - The school offers the student opportunities for the development of leadership potential and self assurance.

Factor 7. Group Life - There are many mutually supportive group activities among the student body, both of a social and a welfare nature.

Factor 8. Academic Organization - The institution stresses a high degree of organization and structure in the academic environment.

Factor 9. Social Form - The school offers opportunites for the development of social skills of a formal nature, and institutionalizes group welfare activities.

Factor 10. Play - Work - The school offers opportunities for participation in the glamorized social stereotype of collegiate life.

Factor 11. Vocational Climate - There are many practical, applied activities, aesthetic experience is rejected, and there is a good deal of orderliness and conformity in the students' relationships.

These eleven factors were recombined in a second-order factor analysis, and two such general factors were extracted: I. Intellectual Climate; and II. Non-Intellectual Climate . It is these two second-order factors which were used in this study.

The first of these, Intellectual Climate, consists of first-order factors one through six, and inversions of factors ten and eleven. It encompasses the opportunity for and encouragement of academic excellence along with opportunities for the students' development of maturity and an absence of vocationalism.

The second factor, Non-Intellectual Climate, contains first-order factors six through eleven. It reflects a high level of organization of student affairs, both academic and social, along with emphasis on social activities and vocationalism.

In subsequent discussion, these factors will be referred to as CCI 1 and CCI 2.

Activities Index

First-order factor analysis of the AI extracted twelve factors. The scales contained in these factors are listed in Table 3. The factors, along with statements briefly describing individuals with high scores on each factor, are:

Factor 1. Self-Assertion - The person has a need to achieve personal power and socio-political recognition.

Factor 2. Audacity - Timidity - The person displays aggressiveness in both physical activities and interpersonal relationships.

Factor 3. Intellectual Interests - The student has interests in the arts as well as the sciences, both abstract and empirical.

Factor 4. Motivation - The person displays the conventional forms of striving, including competitiveness and perseverance, as well as intellectual aspiration.

Factor 5. Applied Interests - The person has an interest in achieving success in concrete, tangible, socially acceptable activities.

Factor 6. Orderliness - The individual has indicated a marked interest in activities stressing personal organization and deliberativeness. The major emphasis is on the maintenance of ritual and routine and the avoidance of impulsive behavior.

TABLE 3

SCALES CONTAINED IN FIRST-ORDER AI FACTORS

Factor	Scales
1. Self-Assertion	Ego Achievement, Dominance, Exhibitionism, Fantasied Achievement
2. Audacity - Timidity	Risktaking,* Fantasied Achievement, Aggression, Science
3. Intellectual Interests	Reflectiveness, Humanities - Social Science, Understanding, Science
4. Motivation	Achievement, Counteraction, Understanding, Energy
5. Applied Interests	Practicalness, Science, Order
6. Orderliness	Conjunctivity, Sameness,* Order, Deliberation*
7. Submissiveness	Adaptability, Abasement, Nurturance, Deference
8. Closeness	Supplication, Sexuality, Nurturance, Deference
9. Sensuousness	Sensuality, Narcissism, Sexuality
10. Friendliness	Affiliation, Play
11. Expressiveness - Constraint	Emotionality, Impulsiveness, Exhibitionism, Sexuality
12. Egoism - Diffidence	Narcissism, Fantasied Achievement, Projectivity*

---

*Scales marked by an asterisk are the reversed form of the conventionally scored scale, and are computed by substracting the initial raw score from ten (the maximum scale score).

From Stern (1963).

Factor 7. Submissiveness - The student has a high level of control based on social conformity and other-directedness.

Factor 8. Closeness - The student is also submissive, but is able to recognize his needs for warmth and emotional supportiveness.

Factor 9. Sensuousness - The person is self-indulgent and delights in the gratifications which may be obtained through the senses.

Factor 10. Friendliness - The student enjoys playful, friendly relationships with other people, usually in a group setting.

Factor 11. Expressiveness - Constraint - The individual is outgoing, spontaneous, impulsive and uninhibited.

Factor 12. Egoism - Diffidence - The student is preoccupied with himself, and concerned with his appearance and comfort, as well as with fantasies in which he obtains unusually high levels of gratification.

These twelve factors were recombined in a second-order factor analysis, and four such factors were extracted: I. Intellectual Orientation; II. Dependency Needs; III. Emotional Expression; and IV. Educability. It is these four second-order factors which were used in this study.

The first factor, Intellectual Orientation, consists of first-order factors one through five. It is predominantly concerned with the intellectual interests and achievement motivation, in various forms, of the student. It seems to provide the complement for CCI second-order factor one, Intellectual Climate.

The second AI factor, Dependency Needs, consists of first-order factors five through eight and the inversions of factors two, eleven and twelve. A high score suggests a generally high level of dependent, submissive, socially-controlled behavior. A low score suggests autonomous, ascendent, non-conformist behavior.

The third factor, Emotional Expression, contains first-order factors eight through twelve, and also factor one. This stresses social participation and emotional spontaneity.

The last AI factor, Educability, is of less magnitude than the previous three, and combines some aspects of the first two factors described. It contains first-order factors three through seven, and reflects a strong interest in intellectual activities coupled with orderliness and conformity.

In subsequent discussion, these factors will be referred to as AI 1, AI 2, AI 3 and AI 4.

Administration and Scoring

As will be explained in more detail below, both the CCI and the AI were distributed to all potential subjects with instructions to complete the 600 items at their convenience, in an unsupervised setting. They were asked to complete the AI items first, followed by the CCI, but there was no formal way of insuring that this procedure was followed. The self-administering format of the tests, and the simplicity of the instructions, allowed for this procedure, which was necessary in light of empirical considerations. However, it did allow the introduction of a myriad of non-standardized features whose effects can only be guessed. The balancing hope is that the straight forward nature of the tests reduced the seriousness of this violation of standardization.

Both tests were scored in parallel ways, so that the procedure can be stated in general. First, the 300 items were reduced to 30 scale scores. These scores were then combined to yield the eleven first-order CCI factor scores, and the twelve first-order AI factor scores. Finally, these factor scores were combined to produce the two second-order CCI factor scores, and four second-order AI factor scores. Using this approach as a model, it was possible to construct second-order factor templates and reduce some of the laboriousness of the procedure, but the rationale was as described. The six second-order factor scores so derived were then utilized in the study.

Additional variables

In order to appreciate more fully the scores achieved by the students on the CCI and the AI, a great deal of additional information was collected. This information was intended to place the scores in perspective by noting antecedent and concurrent correlates. Each of these variables will be described below.

Sex

Sex was among the items requesting background information that appeared on the answer sheets for the CCI and the AI. In light of known and suspected sex differences in personality and attitudes toward college, separate analyses were performed for males and females in many cases.

Academic Class

The variable of prime concern, as suggested by the hypotheses underlying this study, was academic class. In order to study change during the college experience, it is necessary to study differences among freshmen, sophomores, juniors and seniors. Assignment to these groups was also made on the basis of information requested on the students' answer sheets.

Major area of study

The final bit of information requested of the student by the answer sheet was his major area of study. At Adelphi University students are requested to select a major area upon entrance, although they, of course, may change majors as they progress. Major areas were thus chosen by the great majority of the students, regardless of class. The three variables mentioned so far, sex, class and major area, were all gleaned from the answer sheets where possible. In those cases where any of this information was omitted, it was available in the student directory, which was a second source if necessary.

The curriculum of Adelphi University is organized into five Institutes, each of which deals with a circumscribed portion of the course offerings. Rather than deal with each chosen major separately, which would have produced an excess of categories, this variable was reduced to a set of categories paralleling the Adelphi curriculum. The five Institutes are the Humanities, Science and Mathematics, Creative and Performing Arts, Behavioral and Social Sciences, and Business Studies. The student was assigned to one of those five groupings on the basis of his chosen major. In some cases it was necessary to utilize a sixth category, Undecided, for those students, usually entering freshmen, who did not indicate a choice. The Institutes are described in more detail below, as they are outlined in the Adelphi University bulletin (1963), in order to clarify the meaning of the categories used.

The Institute of the Humanities is composed of the foreign language Departments - Classical Languages and Literatures, French, German and General Linguistics, Italian, Russian, and Spanish - and the Departments of English, History and Government, Economics, and Philosophy and Religion. Pre-law and pre-theological students are also under its jurisdiction. This Institute introduces the student to the sources and historical development of his own and other cultures of the world, and enables him to participate with full awareness and understanding in the culture to which he himself belongs.

The Institute of Science and Mathematics is composed of the Departments of Biology, Chemistry, Mathematics and Physics. Students with pre-professional plans in medicine, dentistry, engineering, architecture and medical technology were also assigned to this Institute. This Institute has as its main field of endeavor the training of students in the modern aspects and implications of science and mathematics.

The Institute of the Creative and Performing Arts is composed of the Departments of Art, Music, Dance, and Speech and Dramatic Art. It has as its primary function the study of the various creative and performing arts with relation both to their theoretical and their practical aspects.

The Institute of the Behavioral and Social Sciences consists of the Schools of Nursing and Social Work, and the Departments of Education, Psychology, Sociology and Anthropology, and Health and Physical Education. It also includes students seeking training in the Speech and Hearing Rehabilitation Center and the Reading and Study Center. This Institute was organized to advance the common interests of the disciplines concerned with human development and behavior.

The Institute of Business Studies offers programs in Accounting, Management, Marketing, Law and Finance, Business Education and Secretarial Science, and Executive Management. Its primary objective is to prepare men and women for useful careers in business.

In the remainder of this text, for purposes of brevity, students will be referred to as Humanities majors, Science majors, Arts majors, Social Sciences majors, Business majors or Undecided. These are shorthand terms for the more elaborately described Institutes as indicated above.

Membership in fraternal organizations

This variable was included for consideration under the supposition that membership in a fraternal organization might color the students' view of the college. This effect was somewhat moderated by the fact that these organizations do not play as large a role in Adelphi campus affairs as they do in many American universities.

Differences in fraternity and sorority rushing procedures and practical considerations led to some differences in use of this variable with men and women. All women could be assigned to membership or non-membership categories, as sorority rushing was completed in the first semester. However, since fraternity rushing was not concluded until after data collection was completed, only upperclassmen (sophomores, juniors and seniors) were classified as members or non-members. This category was not utilized with freshmen males.

Place of residence

The predominant residence pattern at Adelphi University is commutation. The majority of students live with their immediate families and commute daily to the University. However, there are student residence halls on campus populated by students who could not commute very easily, such as out-of-state and foreign students, and some students from the immediate area if space permits. Finally, there are arrangements for community housing, with rooms available to students in some private homes in the Garden City area. Students choosing community housing either do not wish to live in, or could not obtain a room in, the residence halls.

It seemed plausible that these different living arrangements would attract students of differing personal characteristics, and would provide different vantage points for viewing the college environment.

This variable, then, was divided into three categories; commuters, dormitory students, and off-campus dwellers. Assignment to these categories was based on lists obtained from the Directors of the Women's and Men's Residences, who provided the names of students living in residence halls and in community facilities. It was assumed that all students whose names did not appear on one of these lists were commuters.

High School quartile

In order to approach the measurement of possible antecedent correlates of college functioning, it was decided to include a measure of high school performance. High school grade point average was ruled out because of the differences in systems of grading and grading standards among the secondary schools whose graduates enroll at Adelphi. High school rank cuts across systems of grading, and, because it is a relative measure, reduces the extent of differences due to grading standards. It does introduce problems because of differences in class size, and so it was decided to use a standard score, the quartile, based on rank in graduating class. This does have some difference in meaning among schools of different standards, but is generally broad enough to provide a useful estimate of high school performance.

Information as to high school quartile was taken from the secondary school transcript which is a portion of each student's admission credentials. These were not available for a small portion of the subjects, usually because they were educated abroad, and occasionally because no indication of class standing was given on their transcript.

Although this variable, by definition of quartile, is divided into four categories, so few students were from the fourth quartile that, in effect, only three categories could be analyzed.

Scholastic Aptitude Tests

A second measure of antecedent functioning, designed to assess aptitude rather than achievement, were the scores on the Scholastic Aptitude Tests of the College Entrance Examination Board (SAT). These tests provide separate estimates of the students' verbal (SAT-V) and quantitative (SAT-Q) skills. Estimates are given in the form of standard scores with a mean of 500 and a standard deviation of 100. These tests are required of all candidates for admission, and scores were taken from the admission folders of the students. Scores were available for all students with the exceptions of foreign students and some transfer students from schools not requiring the SAT for admission. This variable was treated as a quantitative continuum rather than being reduced to broader categories.

Grade point average

The grade point average (GPA) was chosen as the most readily obtainable index of achievement in college. While this does leave something to be desired as an expression of the totality of the student's achievement in college, it does yield a great deal of information about the student's functioning in a very important aspect of his college experience, the classroom situation.

GPA was computed from the registrar's records for each student by assigning him three points for each hour of credit completed with the grade of A, two points for each hour of credit with the grade of B, one point for the grade of C, zero points for the grade of D, and minus one point for each hour completed with a failing grade. Of course, points were summed and divided by the number of credit hours completed. This system placed an upper limit of 3.00 on the GPA and, in effect, approximately 1.00 was the lower limit, as students with averages much below this figure would be dropped from the University for failure to meet academic requirements.

Due to practical considerations, all GPAs were computed as of the Spring semester of the academic year 1962-63. This meant that concurrent achievement measures were not available for members of the freshman class or entering transfer students. GPAs for sophomores were based on one year's work, for juniors on two year's work and for seniors on three year's work. This variable was also treated as quantitative and not subdivided into qualitative groupings.

Method of administration

Because of practical considerations, the method of test distribution was radically different for the freshman class and the upper classes (sophomore, junior, senior). As will be seen, this difference was reflected in the proportion of respondents in the two subgroups.

The freshman class, prior to the first day of classes, participated in a series of orientation procedures sponsored by the University. This brought them together as a group and allowed for direct contact with them. Orientation activities at Adelphi are conducted by dividing the entering class into groups of approximately 25, each of which has a group leader assigned to it. The group leaders are upperclassmen chosen for their interest in school affairs and ability, and provide the major liaison between the school and the entering students. Each group leader was given a package containing one AI and one CCI for each member of his group. The tests were distributed to the students, who were assured of the confidentiality of their responses, and told to take the tests home and to complete all items on both inventories, doing the AI first, and then to return them to the group leader. A combination of the semi-official setting for distribution, the personal contact with the group leaders and the motivation of entering students resulted in a return of 373 usable protocols of 538 distributed, or 69.3% .

There was no similar possibility for contact with the upperclassmen, as they did not meet as a group on any occasion. As a result, contact with this group was made through the mails. During the first week of school a package was sent to all students whose last names began with the letters A-H. This package contained the two test protocols and answer sheets, a self-addressed and stamped return envelope, and a covering letter enlisting their cooperation. The covering letter emphasized the confidentiality of their responses and the importance of the project. Despite this appeal, the return was very disappointing, so each of these students was sent a follow-up letter reiterating the instructions and re-emphasizing the need for their cooperation. When the follow-up letter did not produce a significant increment in returns, the cooperation of the Dean of Students was enlisted. He agreed to write the covering letter for the remaining distribution, and each student was then sent a packet of test materials almost identical to the first, with the only changes being the inclusion of the letter from the Dean rather than the principal investigator, and the omission of the return envelope, with the recommendation, instead, that free campus mail facilities be used. A copy of the letter sent by the Dean, which is a model of the communication with this group of the subjects, can be found in Appendix 1. Unfortunately, neither the follow-up letter nor the Dean's letter resulted in a significant increment over the percentage of responses obtained in the initial mailing. In all, 442 upperclassmen returned usable protocols, of 1,739 distributed, for a rate of return of 25.4%. The total figures are 815 returns of 2,277 protocols sent, or 35.8%. This necessitated an intensive comparison of respondents and non-respondents on all background data, and these comparisons are reported in the Results chapter.

The very disappointing rate of return, despite the semi-official, and clearly administratively approved, nature of the distribution, warranted some inquiry into its cause. Interviews with a number of students, both respondents and non-respondents, seemed to indicate that the principal reason for non-return was the length and ambiguity of the test instruments. As the interviewing was non-systematic and after the fact, this factor can only be suggested as mainly responsible for the poor return.

CHAPTER III

RESULTS

Subjects: Respondents vs. non-respondents

With a response rate of 35.8% , it was mandatory to analyze differences between the respondents and non-respondents on all the background variables under consideration, so that proper allowance could be made for non-representative sampling where it occurred. Where quantitative scores were involved, the analysis consisted of _t_-tests between respondents and non-respondents. Where categorical assignments were made, chi-square was utilized to test differences between the groups.

The initial set of analyses considered the sex and class of the respondents, and was performed first in order to define the appropriate groups on which to perform all the following tests. These results are reported in Table 4.

The analysis relating sex and responding indicated that, for the group as a whole, there was a preponderance of female respondents, and that this imbalance was contributed primarily by freshmen and sophomore females.

The initial analysis by class showed an overwhelming overrepresentation of freshmen, which, of course, was an artifact produced by the different approaches to test administration. The analysis was repeated omitting the freshman class,

TABLE 4

CHI-SQUARE VALUES FOR DIFFERENCES BETWEEN RESPONDENTS AND NON-RESPONDENTS AS TO SEX AND ACADEMIC CLASS[+]

	Variable		
Group	Sex	Academic Class	Upperclasses
Freshman	15.56**[a]	--------	--------
Sophomore	13.75**[a]	--------	--------
Junior	1.56	--------	--------
Senior	3.12	--------	---------
Male	--------	134.11**[b]	7.22*[c]
Female	--------	194.45**[b]	.20
Total	36.16**[a]	348.47**[b]	4.47

[+] Each score is derived by using a 2xk chi-square, with respondents and non-respondents as one classification, and the k classification indicated under "variable". Analyses were performed for each of the groups listed in the vertical column.

* $p \leq .05$

** $p \leq .01$

a Females overrepresented

b Freshman class overrepresented

c Sophomore class underrepresented, junior class overrepresented and showed no imbalance in responding for the group as a whole according to academic class, although the male respondents did underrepresent the sophomore class and overrepresent the junior class.

Analyses of the remaining data were performed on each combination of sex and class separately, owing to the differences identified above. Results of the chi-squares performed on the categorical data are reported in Table 5.

The principal imbalance according to major area of study was an underrepresentation of business majors. This was true in the group as a whole, in males as a whole (almost all business majors are male) and in the sophomore class. In addition, science majors were overrepresented among males.

The major effect in the analysis of high school standing was the underrepresentation of members of the third and fourth quartile. This effect was almost entirely due to the freshman class, in which this effect was prominent, and which consists of 45.8% of the samples. Among the upperclass high school standing was equally represented in respondents and non-respondents.

Membership in fraternal organizations showed a markedly different influence on males and females. Among males in general, and senior males in particular, members of fraternities were underrepresented among the respondents. However, among females in general, and junior and senior females

TABLE 5

CHI-SQUARE VALUES FOR DIFFERENCES BETWEEN RESPONDENTS AND NON-RESPONDENTS AS TO MAJOR AREA, HIGH SCHOOL QUARTILE, MEMBERSHIP IN FRATERNAL ORGANIZATIONS AND PLACE OF RESIDENCE[+]

	Variable			
Group	Major Area	High School Quartile	Membership in Fraternal Organization	Place of Residence
Freshman male	3.05	18.02**[c,d]	-------	2.08
Freshman female	4.21	17.98**[c]	2.10	1.75
Freshman total	8.48	36.73**[c,d]	2.10	2.24
Sophomore male	7.11	2.03	.00	1.89
Sophomore female	6.93	4.09	.19	.00
Sophomore total	12.85*[a]	4.29	.44	.72
Junior male	1.54	2.32	2.92	1.94
Junior female	5.33	1.05	16.06**[e]	2.26
Junior total	4.19	3.47	2.91	.55
Senior male	5.29	2.19	4.18*[f]	1.47
Senior female	.17	2.73	7.88**[e]	4.80
Senior total	5.13	4.31	.95	2.23
Total male	19.90**[a,b]	13.72**[d]	5.03*[f]	5.28
Total female	8.08	6.45	5.52*[e]	19.75**[g]
TOTAL	34.60**[a]	28.92**[c,d]	4.69*[e]	16.63**[g]

[+] Each score is derived by using a 2xk chi-square with respondents and non-respondents as one classification, and the k classification indicated under "variable." Analyses were performed for each of the groups listed in the vertical column. Inconsistencies in level of significance among the columns can be attributed to differences in the degrees of freedom involved.

[*] $p \leq .05$
[**] $p \leq .01$

[a] Business majors underrepresented
[b] Science majors overrepresented
[c] Third quartile underrepresented
[d] Fourth quartile underrepresented
[e] Members overrepresented
[f] Members underrepresented
[g] Off-campus students overrepresented

in particular, members of sororities were overrepresented among respondents. The implications of this finding will be elaborated shortly.

Place of residence seemed to have the least effect on the response patterns. While off-campus students were overrepresented in the group as a whole, and among females, they represent less than 10% of the population under consideration. In none of the subgroups studied was there any imbalance due to place of residence.

Quantitative data were analyzed by means of t-tests between respondents and non-respondents, and these t values are reported in Table 6. The variables under consideration were SAT-V scores, SAT-Q scores and GPA. For each of these variables, sophomore female respondents achieved higher scores than non-respondents. In addition, junior female respondents achieved higher GPAs than non-respondents.

In summary, respondents seem more likely than non-respondents to be females, freshmen and members of a sorority, while non-respondents are more likely to be business majors and members of a fraternity. Joint consideration of the quantitative data and the data regarding high school standing seem to favor the respondents intellectually, although this is by no means pervasive throughout the sample. By way of caution, it should be remembered that whenever so many statistical operations are performed, a portion of those achieving significance may have

TABLE 6

t - VALUES FOR DIFFERENCES BETWEEN RESPONDENTS AND NON-RESPONDENTS ON SCHOLASTIC APTITUDE TEST SCORES AND GRADE POINT AVERAGE

	Variable		
Group	SAT-V	SAT-Q	GPA
Freshmen male	.04	.29	-----
Freshmen female	.06	1.94	-----
Sophomore male	*1.70*	*1.29*	*.71*
Sophomore female	2.88**^{a}	2.84**^{a}	3.84**^{a}
Junior male	1.86	.64	.44
Junior female	.97	.19	2.12*^{a}
Senior male	.93	.34	1.60
Senior female	1.66	.09	.77

* $p \leq .05$

** $p \leq .01$

a **Respondents achieved higher scores** done so through the effects of chance alone.

Aside from using this information for a description of the characteristics of the respondent group, it may be possible to draw some substantive conclusions from the data. Response to a questionnaire distributed under the auspices of a University administration, and with the goal of increased understanding of the University community, seems to be a reasonable index of involvement in school activities, although quite obviously a number of other factors are also involved. Ignoring differences in class, which were artifactual, a number of conclusions can be reached. Stereotypes suggesting that females, and particularly bright females, are more involved in campus activities are supported by the pattern of response to these inventories. At Adelphi the Business School is somewhat apart from the structure of a liberal arts curriculum, with business students taking most of their classwork together, in a separate building, and only taking a limited number of courses together with other undergraduates. This separation, too, is reflected by their underrepresentation among the respondents.

Perhaps the most interesting substantive speculations concern membership in fraternal organizations. The data suggest that the effect of membership is most pronounced in the later years of college, and is quite different among males and females. For males, the fraternity is seen as an environment providing gratification independent from the University community, and as the fraternity becomes more important, the University becomes less important. On the other hand, female membership in a sorority provides an involvement with campus affairs, and as the sorority becomes more gratifying, the feeling of involvement with the University grows. If these speculations can be validated under more rigorous conditions, it would provide information of great importance to a University administration.

More detailed descriptions of the sample studied are available in Appendices 2-5. These appendices contain specific breakdowns of the number of respondents in each of the categories which have been discussed.

Summary of the correlational data[1]

Quantitative scores were available for nine variables: four AI scales; two CCI scales; two SAT scores; and GPA. In order to determine the relationships among these variables, a 9x9 correlational matrix was constructed, and Pearson product-moment coefficients computed for each possible pair of scores. Such matrices were calculated for each of the eight subgroups formed by combining sex and academic class, and the eight matrices are presented in Appendices 6-9. Each of the matrices are 9x9 with the exception of those for the two freshman groups which are 8x8, owing to the absence of GPA data. As the only measure of current functioning included is GPA, the correlations with this variable are of primary concern. Upperclass scores were combined to produce correlations of each of the eight remaining variables with GPA, with calculations performed separately for males, females and the entire group. A summary of these values is presented in Table 7. The only one of the six factor scores to correlate significantly with GPA was AI 2, Dependency Needs, which correlated - .22 for the female group. However, this inverse relationship between dependency and academic achievement in females must be viewed with caution, as it is of very modest magnitude, and was the only one of 18 correlations performed between inventory scores and GPA to reach significance, so that the effects of chance cannot be overlooked. Further, in examining the relationship between AI 2 and GPA in the female subgroups, we find correlations of - .21 in the Sophomore class, - .06 in the Junior class and - .09 in the Senior class, none of which reach significance ($p \leq .05$). This, too, suggests that the relationship between AI 2 and GPA, if not generated by chance alone, is, at most, relatively minor. Further examination of the six subgroup matrices shows that each of the six inventory scores correlate significantly with GPA once, and only once, with the remaining five correlations failing to reach significance. It would appear, from this information, that the four factor scores of the AI, and the two factor scores of the CCI, have very little relationship with GPA, a standard measure of current academic achievement.

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[1] The remainder of the analyses reported in this chapter were accomplished with the aid of the Adelphi University Computing Center. The very substantial help of Dr. Mary Louise Buchanan is gratefully acknowledged.

TABLE 7

CORRELATIONS OF INVENTORY SCORES AND SCHOLASTIC APTITUDE TEST SCORES WITH GRADE POINT AVERAGE

Variables correlated with GPA

Group	AI 1	AI 2	AI 3	AI 4	CCI 1	CCI 2	SAT-V	SAT-Q
Males	-.01	.01	-.16	.17	-.05	-.13	.25*	.31**
Females	.10	-.22*	-.09	.02	-.12	-.07	.48**	.20*
Total	-.02	.09	-.09	.10	-.05	-.13	.38**	.30**

* $p \leq .05$

** $p \leq .01$

Although peripheral to the immediate goals of the study, it is of some interest to observe the relationships between the SAT scores and GPA. In each of the six subgroups matrices, correlations of both SAT-V and SAT-Q with GPA reached statistical significance. In the summary correlations reported in Table 7 too, all correlations reached significance, ranging from .20 for the females'SAT-Q to .48 for the females' SAT-V. It is interesting to note that although females generally had higher SAT-V scores, and lower SAT-Q scores, than males (as will be reported below), SAT-Q showed a higher relationship with GPA for females, and SAT-V a higher relationship with males. The pervasive significance of the correlations of SAT scores with GPA provide justification for the widespread use of those scores as a selection device, although the modest magnitude of the correlations reinforce the necessity for additional information in a selection bettery.

Factors associated with the quantitative variables

This research considered the interrelationships of nine quantitative variables (four AI scores, two CCI scores, two SAT scores, GPA) and six categorical variables (sex, academic class, high school quartile, major area of study, place of residence, membership in fraternal organizations). Interrelations among the quantitative variables were described in the preceding section. The next stage of analysis focussed on relationships between the quantitative scores and the categorical variables. Each of the nine quantitative scores was approached separately, serving, in turn, as the dependent variable in a sequence of simple randomized analyses of variance. In each analysis of variance the categorical variables were explored separately, providing the treatment conditions. Thus, for each of nine scores, six separate analyses of variance were performed.

In order to assess possible interactions among the categorical variables, each score also served as data for two separate three-dimensional analyses of variance. Because of the relative prominence of sex, class, major and quartile in the earlier analyses, the approaches were Sex X Class X Major and Sex X Class X Quartile. Because of the need to maintain proportionality and the limitations in the number of students, only the major areas of Humanities, Science and Social Sciences could be considered. There were too few female Business majors, male Arts majors and upperclass Undecided for these categories to be retained. Similarly, only the upper three Quartiles could be considered because of the paucity of students from the fourth Quartile. Two hundred and eighty-eight respondents were selected for the analyses involving major, and 296 for the analyses involving quartile. Selection was at random within each cell, and the reduced number of protocols was necessitated by the statistical requirement of proportional distribution.

Of the 18 analyses performed, each of which had four interaction terms, only two interactions reached significance (Sex X Quartile for AI 4 and Sex X Class for SAT-Q), fewer than would be expected by chance alone. The main effects in these analyses, as would be expected, paralleled the effects discovered in the earlier simple randomized analyses. Because the three dimensional analyses of variance did not contribute any further clarification of relationships, but were redundant with analyses to be presented, they will not be discussed in this chapter. However, tables summarizing the results of these analyses can be found in Appendices 10-15.

In this section, each of the nine quantitative scores will be approached in turn, with the results of the six analyses performed with that score reported.

AI 1 - Intellectual Orientation

The results of the six analyses of variance involving AI 1 are presented in Table 8. Means for those analyses which discovered significant differences are presented in Table 9.

Significant differences were found for three variables; sex, class and major. The remaining three variables (quartile, residence,membership) did not produce a significant effect.

The significant difference for sex was a result of males achieving higher Intellectual Orientation scores than did females. With regard to class, sophomores had higher AI 1 scores than juniors

TABLE 8

SUMMARY OF SIMPLE RANDOMIZED ANALYSES OF VARIANCE INVOLVING ACTIVITIES INDEX 1 (INTELLECTUAL ORIENTATION)

	Sex			Class			Quartile		
Source	df	ms	F	df	ms	F	df	ms	F
Treatments	1	24,746.7	44.65**	3	2,227.0	3.86**	3	720.07	1.22
Within Groups	819	554.2		817	577.6		785	591.37	
Total	820			820			788		

	Major			Residence			Membership		
Source	df	ms	F	df	ms	F	df	ms	F
Treatments	5	3848.07	6.38**	2	89.84	-----	1	1494.78	2.52
Within Groups	815	563.63		818	584.87		668	593.06	
Total	820			820			669		

** $p \leq .01$

TABLE 9

ACTIVITIES INDEX 1 MEANS FOR SEX, CLASS AND MAJOR

Sex	
Male	111.13^{a}
Female	100.01^{b}

Class	
Freshman	$105.58^{a,b}$
Sophomore	109.34^{a}
Junior	100.23^{b}
Senior	102.90^{b}

Major	
Humanities	104.81^{a}
Science	113.01^{b}
Arts	99.64^{a}
Social Sciences	101.78^{a}
Business	102.22^{a}
Undecided	99.61^{a}

Note: Cells having a superscript in common are not significantly different ($p \leq .05$) .

or seniors, with freshmen scores in an intermediate position. Finally, considering major area, the only significant effect among the six areas was the elevation of the AI 1 scores of Science majors above all the other areas. There were no differences among the remaining five majors on this variable.

AI 2 - Dependency Needs

The results of the six analyses of variance involving AI 2 are presented in Table 10. Means for those analyses which discovered significant differences are presented in Table 11.

The only significant differences concerning AI 2 were with respect to sex and quartile. The remaining four variables (class, major, residence, membership) did not produce significant effects.

The sex difference was a product of females having higher Dependency Needs scores than males. Students who had been in the first quartile of their high school graduating class had higher AI 2 scores than those from the second or third quartiles, with those from the fourth quartile in an intermediate position.

AI 3 - Emotional Expression

The results of the six analyses of variance involving AI 3 are presented in Table 12. Means for those analyses which discovered significant differences are presented in Table 13.

TABLE 10

SUMMARY OF SIMPLE RANDOMIZED ANALYSES OF VARIANCE INVOLVING ACTIVITIES INDEX 2 (DEPENDENCY NEEDS)

	Sex			Class			Quartile		
Source	df	ms	F	df	ms	F	df	ms	F
Treatments	1	20,886.1	47.54**	3	586.4	1.26	3	1374.23	3.02*
Within Groups	819	439.4		817	463.9		785	455.44	
Total	820			820			788		

	Major			Residence			Membership		
Source	df	ms	F	df	ms	F	df	ms	F
Treatments	5	345.27	-----	2	1225.68	2.65	1	229.77	-----
Within Groups	815	465.04		818	462.45		668	458.45	
Total	820			820			669		

* $P \leq .05$

** $P \leq .01$

TABLE 11

ACTIVITIES INDEX 2 MEANS FOR SEX AND QUARTILE

Sex		Quartile	
Male	125.96^a	First	134.50^a
Female	136.17^b	Second	130.14^b
		Third	128.79^b
		Fourth	$131.81^{a,b}$

Note: Cells having a superscript in common are not significantly different ($p \leq .05$)

TABLE 12

SUMMARY OF SIMPLE RANDOMIZED ANALYSES OF VARIANCE INVOLVING ACTIVITIES INDEX 3 (EMOTIONAL EXPRESSION)

	Sex			Class			Quartile		
Source	df	ms	F	df	ms	F	df	ms	F
Treatments	1	10,544.2	17.29**	3	1320.1	2.13	3	1083.95	1.73
Within Groups	819	609.8		817	619.3		785	625.04	
Total	820			820			788		

	Major			Residence			Membership		
Source	df	ms	F	df	ms	F	df	ms	F
Treatments	5	4547.14	7.61**	2	910.28	1.47	1	14151.19	23.94**
Within Groups	815	597.79		818	621.17		668	591.12	
Total	820			820			669		

** $P \leq .01$

TABLE 13

ACTIVITIES INDEX 3 MEANS FOR SEX, MAJOR AND MEMBERSHIP

Sex		**Major**	
Male	97.40^{a}	Humanities	$103.76^{a,c}$
Female	104.66^{b}	Science	93.11^{b}
		Arts	109.30^{a}
Membership		Social Sciences	$105.46^{a,c}$
Member	109.55^{a}	Business	100.61^{c}
Non-Member	99.56^{b}	Undecided	$99.38^{b,c}$

Note: Cells having a superscript in common are not significantly different ($p \leq .05$).

Significant differences were found for three variables; sex, major, and membership. The remaining three variables (class, quartile, residence) did not produce a significant effect.

Females received higher Emotional Expression scores than did males, accounting for the significant sex effect. Fraternity and sorority members registered higher scores than non-members on this variable. The highest score on Emotional Expression was achieved by Arts majors, although these scores were not significantly above those of Social Sciences or Humanities majors. The lowest scores were those of Science majors, although these were not significantly below those students who were Undecided as to major area. There were no significant differences among the intermediate four areas (Social Sciences, Humanities, Business, Undecided).

AI 4 - Educability

The results of the six analyses of variance involving AI 4 are presented in Table 14. Means for those analyses which discovered significant differences are presented in Table 15.

The only significant differences involving AI 4 were on the class and major variables. The remaining four variables (sex, quartile, residence, membership) did not produce significant effects.

TABLE 14

SUMMARY OF SIMPLE RANDOMIZED ANALYSES OF VARIANCE INVOLVING ACTIVITIES INDEX 4 (EDUCABILITY)

	Sex			Class			Quartile		
Source	df	ms	F	df	ms	F	df	ms	F
Treatments	1	95.9	----	3	2,548.7	5.14**	3	942.47	1.87
Within Groups	819	503.6		817	495.6		785	504.42	
Total	820			820			788		

	Major			Residence			Membership		
Source	df	ms	F	df	ms	F	df	ms	F
Treatments	5	2796.63	5.72**	2	1368.16	2.73	1	215.57	-----
Within Groups	815	489.08		818	501.04		668	508.44	
Total	820			820			669		

** $P \leq .01$

TABLE 15

ACTIVITIES INDEX 4 MEANS FOR CLASS AND MAJOR

Class		Major	
Freshman	112.42^{a}	Humanities	108.00^{b}
Sophomore	$111.54^{a,c}$	Science	117.16^{a}
Junior	104.77^{b}	Arts	107.56^{b}
Senior	$107.44^{b,c}$	Social Sciences	108.96^{b}
		Business	106.21^{b}
		Undecided	105.03^{b}

Note: Cells having a superscript in common are not significantly different ($p \leq .05$) .

Members of the Freshman class achieved higher Educability scores than members of the Junior or Senior classes, but were not different from members of the Sophomore class. Members of the Sophomore class received higher scores than members of the Junior class, but were not significantly different from members of the Senior class. There were no differences in AI 4 scores between the Junior and Senior classes.

The highest Educability scores were received by those students who were Science majors. There were no significant differences among students in the remaining five major areas of study.

CCI 1 - Intellectual Climate

The results of the six analyses of variance involving CCI 1 are presented in Table 16. Means for those analyses which discovered significant differences are presented in Table 17.

Membership in fraternal organizations was the only variable which did not show a significant effect in its relationship with CCI 1 scores. Significant effects were produced by each of the five other variables (Sex, Residence, Class, Major, Quartile)

Female scores indicated that they perceived a greater Intellectual Climate than did males. Students who lived at home perceived a less Intellectual Climate than did those who lived in dormitories or in off-campus residences. Students residing

TABLE 16

SUMMARY OF SIMPLE RANDOMIZED ANALYSES OF VARIANCE INVOLVING COLLEGE CHARACTERISTICS INDEX 1 (INTELLECTUAL CLIMATE)

	Sex			Class			Quartile		
Source	df	ms	F	df	ms	F	df	ms	F
Treatments	1	14,706.2	13.66**	3	121,532.4	181.96**	3	4246.78	3.88**
Within Groups	853	1,076.5		851	667.9		818	1093.49	
Total	854			854			821		

	Major			Residence			Membership		
Source	df	ms	F	df	ms	F	df	ms	F
Treatments	5	2629.21	2.43*	2	6980.06	6.47**	1	141.75	-----
Within Groups	849	1083.42		852	1078.65		685	1151.60	
Total	854			854			686		

* $p \leq .05$

** $p \leq .01$

TABLE 17

COLLEGE CHARACTERISTICS INDEX 1 MEANS FOR SEX, CLASS, QUARTILE,MAJOR AND RESIDENCE

Sex	
Male	179.12^{a}
Female	187.50^{b}

Class	
Freshman	205.21^{a}
Sophomore	166.77^{b}
Junior	$165.08^{b,c}$
Senior	160.75^{c}

Quartile	
First	184.43^{a}
Second	186.21^{a}
Third	176.75^{b}
Fourth	169.04^{b}

Major	
Humanities	179.19^{a}
Science	$183.87^{a,b}$
Arts	188.11^{b}
Social Sciences	186.95^{b}
Business	176.99^{a}
Undecided	188.86^{b}

Residence	
Home	181.31^{a}
Dormitory	189.89^{b}
Off-Campus	190.56^{b}

Note: Cells having a superscript in common are not significantly different ($p \leq .05$).

off-campus and in dormitories did not differ significantly with respect to CCI 1.

The highest scores on the Intellectual Climate variable were achieved by members of the Freshman class. The Sophomore class was significantly higher than the Senior class, but not different from the Junior class. There were no differences between the Junior and Senior class.

The highest scores on the CCI 1 variable were received by students majoring in Arts, Social Sciences, and those who were Undecided. The lowest scores were registered by students majoring in Business and Humanities. Science majors were intermediate between these two clusters, and not significantly different from any group.

Students who had graduated in the first or second quartile of their high school class were not different from each other, and their scores were higher than those students who were in the third and fourth quartile, who, in turn, showed no differences between themselves.

CCI 2 - Non-Intellectual Climate

The results of the six analyses of variance involving CCI 2 are presented in Table 18. Means for those analyses which discovered significant differences are presented in Table 19.

Significant differences were produced by four variables; sex, membership, quartile, and class. The other two variables, major and residence, did not lead to significant effects.

TABLE 18

SUMMARY OF SIMPLE RANDOMIZED ANALYSES OF VARIANCE INVOLVING COLLEGE CHARACTERISTICS INDEX 2 (NON-INTELLECTUAL CLIMATE)

	Sex			Class			Quartile		
Source	df	ms	F	df	ms	F	df	ms	F
Treatments	1	3114.7	5.54*	3	54,589.3	145.57**	3	3493.17	6.22**
Within Groups	853	562.4		851	375.0		818	562.01	
Total	854			854			821		

	Major			Residence			Membership		
Source	df	ms	F	df	ms	F	df	ms	F
Treatments	5	690.57	1.22	2	1120.42	1.99	1	2633.38	4.55*
Within Groups	849	564.69		852	564.13		685	579.08	
Total	854			854			686		

* $p \leq .05$

** $p \leq .01$

TABLE 19

COLLEGE CHARACTERISTICS INDEX 2 MEANS FOR SEX, CLASS, QUARTILE AND MEMBERSHIP

Sex		**Membership**	
Male	152.24^a	Member	156.38^a
Female	158.10^b	Non-Member	152.11^b

Class		**Quartile**	
Freshman	170.70^a	First	155.19^b
Sophomore	145.93^b	Second	159.70^a
Junior	$142.59^{b,c}$	Third	150.59^b
Senior	141.30^c	Fourth	146.27^b

Note: Cells having a superscript in common are not significantly different $(p \leq .05)$.

Females received higher scores than males on the Non-Intellectual Climate variable. Fraternity and sorority members received higher scores than did non-members. Students in the second quartile of their high school class received higher CCI 2 scores than students in the first, third and fourth quartiles. There were no significant differences among the latter three groups.

The highest CCI 2 scores were achieved by members of the Freshman class. Students in the Sophomore class had higher scores than those in the Senior class, but were not different from those in the Junior class. There were no differences between members of the Junior and Senior classes.

SAT Verbal

The results of the six analyses of variance involving SAT Verbal scores are presented in Table 20. Means for those analyses which discovered significant differences are presented in Table 21.

Significant differences were produced by four variables; sex, class, quartile and major. The other two variables, membership and residence, did not produce significant effects.

Females received higher SAT Verbal scores than did males. Members of the Sophomore class had higher scores than members of the Junior or Senior class, but were not significantly different from members of the Freshman class. There were no significant differences among the Freshman, Junior and Senior classes.

TABLE 20

SUMMARY OF SIMPLE RANDOMIZED ANALYSES OF VARIANCE INVOLVING SCHOLASTIC APTITUDE TEST VERBAL SCORES

	Sex			Class			Quartile		
Source	df	ms	F	df	ms	F	df	ms	F
Treatments	1	42,051.3	5.81*	3	29,471.3	4.09**	3	179,623.67	27.25**
Within Groups	821	7,240.8		819	7,201.9		797	6,591.09	
Total	822			822			800		

	Major			Residence			Membership		
Source	df	ms	F	df	ms	F	df	ms	F
Treatments	5	52,585.30	7.51**	2	14,080.63	1.94	1	1,469.13	-----
Within Groups	817	7,005.91		820	7,266.58		655	7,100.82	
Total	822			822			656		

* $p \leq .05$

** $p \leq .01$

TABLE 21

SCHOLASTIC APTITUDE TEST (VERBAL) MEANS FOR SEX, CLASS, QUARTILE AND MAJOR

Sex		**Class**	
Male	496.09^{a}	Freshman	507.73^{a,b}
Female	510.56^{b}	Sophomore	521.47^{a}
		Junior	492.73^{b}
Major		Senior	490.83^{b}
Humanities	522.72^{c}		
Science	514.09^{c,d}	**Quartile**	
Arts	488.00^{b}	First	536.50^{a}
Social Sciences	499.09^{b,d}	Second	487.30^{b}
Business	456.34^{a}	Third	484.78^{b,c}
Undecided	511.13^{b,c,d}	Fourth	449.30^{c}

Note: Cells having a superscript in common are not significantly different ($p \leq .05$) .

The highest scores were received by students who had graduated in the first quartile of their high school class. Students in the second quartile had higher scores than those in the fourth, but their scores were not different from those in the third quartile. There were no differences between those students who had placed in the third and fourth quartiles of their high school class.

Of the major areas, the highest SAT Verbal scores were received by Humanities majors, although these were not significantly higher than those of Science majors or Undecided students. Second was the Science majors, but these were not significantly higher than Undecided students or Social Sciences majors. Undecided students, Social Science majors and Arts majors placed next, with no significant differences among them. Business majors received the lowest SAT Verbal scores, significantly below every other group.

SAT Quantitative

The results of the six analyses of variance involving SAT Quantitative scores are presented in Table 22. Means for those analyses which discovered significant differences are presented in Table 23.

Significant differences were found with four variables; sex, class, quartile and major. The other two variables, residence and membership, did not produce significant effects.

TABLE 22

SUMMARY OF SIMPLE RANDOMIZED ANALYSES OF VARIANCE INVOLVING SCHOLASTIC APTITUDE TEST QUANTITATIVE SCORES

	Sex			Class			Quartile		
Source	df	ms	F	df	ms	F	df	ms	F
Treatments	1	242,323.3	31.07**	3	48,929.4	6.17**	3	126,753.92	16.96**
Within Groups	821	7,799.1		819	7,934.8		797	7,474.04	
Total	822			822			800		

	Major			Residence			Membership		
Source	df	ms	F	df	ms	F	df	ms	F
Treatments	5	135,120.62	18.49**	2	14,159.94	1.75	1	6,340.75	-----
Within Groups	817	7,306.99		820	8,069.62		655	7,768.90	
Total	822			822			656		

** $P \leq .01$

TABLE 23

SCHOLASTIC APTITUDE TEST (QUANTITATIVE) MEANS FOR SEX, CLASS, QUARTILE AND MAJOR

Sex	
Male	537.14^a
Female	502.41^b

Class	
Freshman	525.47^a
Sophomore	530.41^a
Junior	499.57^b
Senior	498.08^b

Major	
Humanities	498.29^b
Science	566.37^a
Arts	490.62^b
Social Sciences	498.47^b
Business	515.93^b
Undecided	515.91^b

Quartile	
First	544.26^a
Second	505.75^b
Third	$496.88^{b,c}$
Fourth	464.52^c

Note: Cells having a superscript in common are not significantly different ($p \leq .05$).

Males scored higher on the SAT Quantitative variable than females. Members of the Freshman and Sophomore classes were not different from each other, and received higher scores than members of the Junior and Senior classes, who were not different from each other.

Students who had placed in the first quartile of their high school graduating class received higher scores than all those who did not. Students in the second quartile had significantly higher scores than those in the fourth quartile, but were not different from those in the third quartile. There were no significant differences between students in the third and fourth quartiles.

The highest SAT Quantitative scores were earned by Science majors. There were no significant differences among the scores of majors in the remaining five areas.

Grade Point Average

The results of the six analyses of variance involving GPA are reported in Table 24. Means for those analyses which discovered significant effects are presented in Table 25.

Three variables, sex, quartile and major, produced significant effects. There were no significant differences found with the remaining three variables (class, residence, membership).

Females earned higher GPAs than did males. Students who graduated in the first quartile of their high school class

TABLE 24

SUMMARY OF SIMPLE RANDOMIZED ANALYSES OF VARIANCE INVOLVING GRADE POINT AVERAGE

	Sex			Class			Quartile		
Source	df	ms	F	df	ms	F	df	ms	F
Treatments	1	73,633.5	3,292**	2	6,632.5	2.77	3	98,381.50	58.37**
Within Groups	407	2,236.8		406	2,391.0		392	1,685.61	
Total	408			408			395		

	Major			Residence			Membership		
Source	df	ms	F	df	ms	F	df	ms	F
Treatments	5	7,865.67	3.36**	2	1,238.39	-----	1	1,781.91	-----
Within Groups	403	2,344.15		406	2,417.60		407	2,413.37	
Total	408			408			408		

** $p \leq .01$

TABLE 25

GRADE POINT AVERAGE MEANS FOR SEX, QUARTILE AND MAJOR

Sex	
Male	1.39^a
Female	1.66^b

Quartile	
First	1.87^a
Second	1.35^b
Third	1.27^b
Fourth	1.23^b

Major	
Humanities	1.63^a
Science	1.63^a
Arts	$1.55^{a,b}$
Social Sciences	1.49^b
Business	1.34^b
Undecided	1.38^b

Note: Cells having a superscript in common are not significantly different $(p \leq .05)$.

received higher GPAs than all other students, and there were no significant differences among students in the second, third and fourth quartiles. The highest GPAs were earned by Humanities and Science majors. The lowest GPAs were received by Social Sciences and Business majors, and Undecided students. Arts majors were intermediate between these clusters, and not significantly different from any group.

CHAPTER IV

CONCLUSIONS AND IMPLICATIONS

The major purposes of this study were to explore changes in students' views of their college environment as they progressed through a college program, factors that related to these changes, interrelationships among these factors, concommitants changes in personality needs, and factors related to academic success. In order to highlight the findings, this section will first consider each of the six ecological and demographic factors investigated, exploring their relationships to each of the dependent variables studied (AI scores, CCI scores, SAT scores, GPA). This will be followed by separate consideration of the two central dependent variables, CCI scores and GPA. Finally, a number of methodological considerations reflecting on the adequacy of the study will be explored. There will not be any examination of the interrelationships of factors, since each of the analyses intended to explore interactions among the principal factors produced a non-significant interaction term. Thus, the question of possible interrelationships must be postponed for future study.

Sex

Significant effects of the sex variable were found in all but one of the analyses performed. The lone exception was AI 4, Educability. Many of the differences reflect and substantiate popular stereotypes about sex differences. Females received higher scores on Dependency Needs and Emotional Expression, while males showed a higher Intellectual Orientation. On the SAT, female Verbal scores were higher than male, while male Quantitative scores were higher than female.

At first glance, CCI results seemed highly contradictory, since females received higher scores than males on both the Intellectual Climate and the Non-Intellectual Climate variable. However, this contradiction can be resolved by an examination of Appendices 6-9, which list the intercorrelations among the quantitative variables. These two variables, CCI 1 and CCI 2, correlate significantly $(p \leq .01)$ in each of the eight subgroups, with values ranging between .27 for freshman females and .71 for sophomore males. An initial attempt to average these eight values was thwarted because a test to determine whether the eight samples could be considered to have come from a common population revealed that this assumption was not tenable $(\chi^2=24.16,\ df=7,\ p \leq .01)$. That this is so can be attributed to the instructions, which asked Freshmen to respond to the CCI on the basis of their expectations about college life, while upperclassmen were asked to respond on the basis of their actual experiences. When the upperclassmen were combined into a single group, all of whom had responded to the same standard instructions. analysis revealed that the assumption that they were drawn from a common population was now tenable (χ^2=8.907, df=5, .20 $\leq$ p $\leq$.10). The six CCI 1 - CCI 2 correlations from the upperclassmen were then averaged, producing a coefficient of .54. This highly significant relationship between Intellectual Climate and Non-Intellectual Climate scores renders the literal interpretation of either highly suspect.

When the male and female freshmen were combined, analysis did not allow the retention of the assumption that both were drawn from the same population (χ^2=4.629, df=1, p $\leq$ .05). At first glance this seems to indicate that males and females have different expectations when they enter college. However, reference to Appendices 11 and 14 show that there were no significant Sex X Class interaction with either CCI variable.

A final puzzle is the finding that females receive higher GPAs than males, despite the balance of SAT scores and lack of difference with regard to Educability. Here the answer may lie in the female's greater Dependency Needs, if those needs are translated into more socially controlled behavior such as studying. However, the data do not allow any clear conclusions regarding study habits, so this must remain at the level of inference. The significant negative correlation between female Dependency Needs and GPA casts further doubts on this interpretation.

Class

In line with one of the stated goals of this study, the investigation of various changes over time, the effects of the class variable should have been of prime interest and significance. Unfortunately, an artifact revealed by the effects of class on SAT scores makes the interpretation of the remaining effects somewhat cloudy.

With both SAT scores a similar pattern emerged. Scores of members of the Freshman and Sophomore classes were consistently and significantly higher than the scores of members of the Junior and Senior classes. In addition, a comparison of the distribution of students from the entire student body in the first two years with those in the last two years as to quartile in their high school graduating class shows wide differences ($\chi^2=20.20$, df=3, $p \leq .01$), with the members of the Junior and Senior classes having proportionately more members from the third and fourth quartiles. These differences may be due to Adelphi's concerted efforts to attract increasingly more capable students, or to an infusion of transfer students in the third year, whose relative abilities cannot be determined from this set of data, or to some combination of these or other factors. But in any case, it is clear than any changes detected over time may be a product of actual change, or of differences in the initial populations from which the students were selected, or both. It would have been more appropriate to study change at a school with an unchanging admissions policy and little student attrition, and far preferable to have adopted a longitudinal approach, which would be effective in any school setting.

Bearing this caution in mind, the differences which did appear followed a general pattern, with the Freshman and Sophomore classes scoring higher than the Junior and Senior classes. This was true with regard to Intellectual Orientation, Educability, Intellectual Climate and Non-Intellectual Climate. Of course, in light of the shortcomings of the CCI, the latter two variables may be disregarded. The first two, AI, variables would seem consistent with already demonstrated differences in intellectual ability, and do not necessarily reflect changes. If, in fact, the student does become less intellectually oriented and educable as he progresses through college, this would be quite disturbing, but for the present it is more parsimonious to treat this finding as artifactual.

Quartile

The predominant effect of the quartile variable, as might have been expected, was in its relationship with measures of intellectual aptitude and achievement. A similar pattern was found for both SAT-V and SAT-Q scores. Students who had graduated in the first quartile received higher SAT scores than all other students, and those in the second quartile received higher scores than those in the fourth. There were no differences between students who had graduated in the third and fourth quartile. These differences in aptitude and demonstrated prior ability were extended to college achievement, where first quartile students earned higher GPAs than all other students. There were no differences among students in the second, third and fourth quartiles. These findings strongly support the use of a measure of high school functioning in the college selection process. With the measure used in this study, the quartile, there was a decided advantage for students who had graduated in the first quartile of their high school class, a small but not impressive advantage for students from the second quartile, and no advantage in selecting a student from the third quartile over one from the fourth. These data would indicate that there is a great initial advantage in selecting students on the basis of high school achievement, but this advantage rapidly fades and becomes negligible in the bottom half of the class. The selection strategy this would suggest is a successive hurdle approach, with high school performance representing an initial hurdle, and approximately the 75th percentile being the cut-off point. Other selection devices would then be used in choosing among the remaining applicants.

The only difference in personality needs found among students divided according to quartile was on AI 2, Dependency Needs. First quartile students evidenced higher dependency needs than those in the second or third quartile, with no differences among the second, third or fourth quartiles. If this variable can be interpreted as a correlate of study habits, this difference would be quite understandable, but it is not clear if this correlation can be inferred.

The CCI scores were again contradictory. Students from the first two quartiles, and particularly from the second quartile, scored higher than those from the bottom two quartiles on both Intellectual Climate and Non-Intellectual Climate. This familiar artifact does not warrant further discussion.

Major area

An examination of the AI scales presents a clear picture of the student who majored in Science. These students received higher scores than all other groups on AI 1, Intellectual Orientation, and AI 4, Educability, and lower scores than all other groups on AI 3, Emotional Expression. The resultant impression of the Science major is of a rather cold, intellectual, achievement oriented student, a set of characteristics consistent with popular stereotype.

The only other major area to present a distinctive personality picture is Arts. Majors in the Performing Arts scored higher than all other groups in AI 3, Emotional Expression, a finding which is also consistent with popular impression. The remaining four major area categories did not show any significant differences among each other on any of the personality variables.

The pattern on the intellectual variables was somewhat more cloudy. SAT-Q scores clearly favored Science majors, who performed at a higher level than all other students, who in turn, showed no significant differences among themselves. SAT-V scores showed less sharp distinctions with the exception of the Business majors, whose scores were clearly lower than those of all other students. There were some differences among the remaining five majors, with the order showing Humanities students with the highest scores, followed by Science majors and Undecided students, who in turn were followed by Social Science and then Arts majors. The clear superiority of Science students in quantitative ability and the elevation of the scores of Humanities majors in verbal ability are quite consistent with the demands of their specific areas of study.

The achievement measure, GPA, also showed clear differences among the major areas. Science and Humanities majors earned the highest GPAs, and Social Science, Business and Undecided students the lowest, with Arts majors intermediate. The achievement of the Science and Humanities students is consistent with their elevated SAT scores, and the low performance of the Business students consistent with their markedly lower SAT-V scores. Social Science majors were also consistent, with scores slightly below the median on all three variables (SAT-V, SAT-Q, GPA). However, there were inconsistencies regarding the ability and achievement scores of Arts majors and Undecided students. The

Arts majors, whose summed SAT scores were only higher than the Business majors, nevertheless performed quite well academically. This may be a function of the courses they took, which emphasize artistic performance rather than the usual academic skills, so that a relationship between SAT scores and GPA would not be as clearly indicated. The Undecided students had summed SAT scores second only to the Science majors, but performed at a level superior only to the Business majors. It would seem plausible that their indecision about career goals, and probable dissatisfaction about this lack of clarity, severely affects their academic performance.

CCI scores were not entirely clear, with some differences in CCI 1 but none on CCI 2. However, in the light of previously indicated difficulties with this instrument, it seems preferable to forego an interpretation of these differences.

Residence and Membership

These two variables, although studied separately, are discussed together because of their general ineffectiveness.

There were no effects produced by either variable with regard to any of the intellectually weighted measures (SAT scores, GPA) and only one for the personality measures. That one showed members of fraternal organizations to achieve higher AI 3 (Emotional Expression) scores than non-members. This difference seems consistent with popular stereotype about fraternities and sororities.

Strangely enough, the most significant information about these two generally unproductive variables come from their CCI scores. Commuting students saw the campus as having a less Intellectual Climate (CCI 2) than students who lived in dormitories or off-campus apartments, and members of fraternal organizations noted a greater Non-Intellectual Climate (CCI 2) than did non-members. However, despite the compelling nature of those findings, they cannot presently be regarded as other than suggestive because of the methodological difficulties with the instrument.

College Characteristics Index

The CCI was initially conceived as the crucial measuring instrument in this study, as it provided the measure of the students' views of the college environment. Unfortunately, internal difficulties with the instrument, which had not been indicated in any previous work, virtually invalidated any conclusion which could be drawn from it. What had originally been seen as two highly distinct and important dimensions, Intellectual Climate and Non-Intellectual Climate, correlated .54, which renders any interpretation form either highly suspect.

Although each of the six qualitative variables investigated produced difference on one or both of these measures, in three of the cases differences were in the same direction for both measures (e.g., Females received higher scores on both CCI 1 and CCI 2) and in no case were differences in opposite directions. This logical contradiction is easily resolved by noting the high intercorrelation of the scales, but this resolution is not one which promotes meaningful interpretation of either.

The interesting differences noted above for Residence and Membership variables would be a good deal more impressive if they could be replicated with a more adequate test. On the basis of this study they can only be offered as tentative hypotheses for further investigation.

Grade Point Average

Despite the frequent protest of educators that GPA is only a partial criterion of success in college, its ease of measurement and face validity thrusts it into the position of sole criterion in many studies of this sort. While other, less easily measurable, variables constitute a portion of the goal of a college education, it seems clear that GPA should relate to a substantial part of the immediate goals of the classroom teacher. As such, selection problems often focus on the prediction of GPA from a variety of intellective and non-intellective variables.

Fishman (1962) has indicated that the most usual outcome is a moderate relationship between the intellective predictor variables and GPA, with an insignificant contribution to success in prediction made by non-intellective variables. Although a number of new non-intellective variables were utilized in this study, the pattern, in the time-honored fashion, indicated the dominance of intellective predictors.

The non-intellective predictors utilized included six inventory scales and five qualitative variables. Of these, only two, Sex and Major Area, related to GPA, and as Major Area is chosen after admission, it cannot be considered a predictor in any practical sense. Further, by utilizing an eta transformation to convert the analysis of variance data to a correlation ratio, so as to be able to estimate the magnitude of the relationship between Sex and GPA, a correlation of .27 was found. This is less than any of the correlations between GPA and the intellective variables. An additional possibility is that the Sex effect may be an artifactual product of sampling bias, since female respondents had higher GPAs than non-respondents.

The intellective predictors utilized were Quartile, SAT-V and SAT-Q. The SAT scores correlated .38 and .30 respectively with GPA. Quartile, through the eta transformation, correlated .56 with GPA, .31 with SAT-V and .25 with SAT-Q. The SAT scores correlate with performance, whether it was in high school (Quartile) or college (GPA), in a range considerably below the correlation between the two performance measures (.56).

In a multiple correlation approach, combining each of the SAT scores with Quartile, neither was able to raise the correlation significantly (with SAT-V, .56; with SAT-Q, .58). The beta weights for quartile (.489, .517) far exceeded those for SAT-V (.192) or SAT-Q (.173), further indicating the importance of the measure of previous performance.

However, the analysis of variance using Quartiles as the treatment effect showed the GPA of the students graduating in the first quartile (1.87) to be significantly higher than those in the second (1.35), third (1.27) or fourth (1.23) quartiles, with no significant differences among the latter three groups. This would suggest that if correlations were computed separately for different segments of the sample, broken down by quartile, the relationship of SAT scores with GPA might be least in the first quartile, where all students seem to perform well, but much more impressive in the lower quartiles. These correlations were not computed as this hypothesis is not central to the current study and was arrived at after the fact, but if seems well worth future investigation.

Methodological Considerations

The primary methodological shortcoming of this study centered about the instruments chosen to measure the dependent variable. The project was to concern itself with students' views of the college environment first, and additionally, with personality concommitants of these views. The CCI was intended to tap students' views, and the AI to deal with personality needs. While the AI seems to have been effective, the factor scoring of the CCI was totally inadequate, and led to a number of internally contradictory findings. While it is granted that both instruments were used with scoring keys that are not usually employed, the most recent manual (Stern, 1963) suggests the potential usefulness of this approach, and it initially seemed as though six empirical factors would be preferable to 60 brief, logically constructed scales. In using the AI the substitution of four factors for 30 scales was accomplished with no apparent loss of information, and interesting patterns of personality needs were discovered with such variables as Sex, Major Area and Membership in Fraternal Organizations. However, the attempt to reduce 30 CCI scales to two factors resulted in two highly intercorrelated factors and essentially no valid conclusions about students' views of their college environment. An initial suggestion would thus involve a refinement of the approach to the CCI so as to produce more meaningful factor scores.

However, an additonal practical problem obtained through the use of these lengthy instruments with a non-captive audience. When students were asked, on their own time and with no material recompense, to complete 600 items, many of which they found ambiguous, their general response was not to respond. Thus, only 69.3% of the freshman class, which was under some pressure to respond, and only 25.4% of the upper classes, who were under no pressure, or a total of 35.8%, elected to return completed protocols. This phenomenon suggests an additional difficutly with the measuring instruments, and more seriously, an additional methodological problem for this study.

The problem of sampling irregularities was carefully investigated by means of extensive comparisons between respondents and non-respondents. Interpretation of response as an index of campus involvement provided some interesting speculations, particularly about the contrasting effects of fraternal organizations on males and females. However, neither the care in assessing the nature of the sampling problem nor the interest of post hoc speculations about these differences mitigate the basic fact that this study was based on approximately one-third of the student body, and that one-third, in some important ways, was not representative of the student body as a whole. Interpretations involving the effects of Sex, Class, and Membership are most prone to qualification due to sampling problems. On the other hand, interpretations of the effects of Quartile, Major and Residence seem to be based on a representation sample, which is particularly fortunate since the effects of Quartile on academic achievement, and of Major on AI scores, are among the most interesting produced in this study. Among the intellective variables (SAT scores, GPA), with the exception of the Sophomore females, where respondents have proportionately higher scores, sampling seems representative, and this too is important to note because of the emphasis placed on GPA in this discussion.

One further methodological problem which arose developed from the changes in admission policy at Adelphi during the past few years. There were marked differences on all three pre-admission intellective variables (SAT scores, Quartile) between the Freshman and Sophomore classes on the one hand, and the Junior and Senior classes on the other. These differences virtually negated the significance of any effects of the Class variable, as these effects might have been traceable to differences in the quality of the students rather than, or in interaction with, any effects of the passage of time.

Although this study has been able to raise a number of interesting speculations, the basic questions remain unanswered in any definitive sense because of the methodological problems discussed above. Two major changes would be recommended in any future attempt to focus on these questions. One would concern the measuring instruments. Changes are absolutely necessary in keying of the CCI, and, unless participation of students was guaranteed, substitution of other brief and less ambiguous instruments would be indicated. Secondly, the use of a cross-sectional design, as employed in this study, is a false economy unless students are selected from highly comparable populations in each year under consideration. The use of a longitudinal design, following the same group from admission through graduation, seems to be a more advisable procedure at this time.

CHAPTER V

SUMMARY

This project studied one college community in depth, focusing on the students' personality needs, academic achievement and views of the college environment, and attempting to locate some correlates of these factors.

The test instruments used were the Stern Activities Index (AI) and the Pace and Stern College Characteristics Index (CCI). The AI was used as a measure of personality needs, and scored on four factors; Intellectual Orientation, Dependency Needs, Emotional Expression, and Educability. The CCI was used as a measure of views of the college environment, and scored on two factors; Intellectual Climate and Non-Intellectual Climate. The measure of academic achievement was the students' grade point average (GPA), which was computed as of the spring semester prior to the study, and thus was available for all students except freshmen.

In addition to these criterion variables, a number of potential predictor variables were employed. These included: Scholastic Aptitude Test Verbal (SAT-V) and Quantitative (SAT-Q) scores; Sex (Male, Female); Class (Freshman, Sophomore, Junior Senior); Quartile in high school graduating class (First, Second, Third, Fourth); Major area of study (Humanities, Science, Arts, Social Science, Business, Undecided); Residence (Home, Dormitory, Off-Campus); and Membership in fraternal organizations (Member, Non-Member).

The AI and CCI were administered to freshmen during their orientation week activities, and were completed by 373 students, or 69.3%. The tests were distributed to upperclassmen by mail and returned by 442 students, or 25.4%. In all, 815 students of 2,277, or 35.8% participated. Comparisons on all possible variables between respondents and non-respondents revealed a number of differences. Respondents were more likely than non-respondents to be females,freshmen and members of a sorority, while non-respondents were more likely to be business majors and members of a fraternity.

Correlation coefficients performed among all the quantitative variables indicated that only SAT scores correlated with GPA. The failure of the principal non-intellective variables, AI and CCI scores, to correlate with GPA, while the intellective variables, SAT scores and Quartile, did show significant relationships with GPA, supports the use of intellective criteria in selection for college admission.

A number of significant relationships concerning personality needs were uncovered , although no interactions among the various qualitative variables were found. For Intellectual Orientation the following significant relationships were found: Males scored higher than Females; Sophomores higher than Juniors and Seniors; Science majors higher than all other majors.

The following significant differences were found in Dependency Needs: Females scored higher than Males; First quartile graduates higher than Second and Third quartile graduates.

With regard to Emotional Expression, the following significant differences were found: Females scored higher than Males; Arts majors scored highest and Science majors lowest among the major areas; Members of fraternal organizations scored higher than non-members.

Finally, the following differences in Educability were found: Freshmen scored higher than Juniors and Seniors, and Sophomores higher than Juniors; Science majors higher than all other majors.

A number of significant differences were found on CCI scores, but since the two CCI factors, Intellectual Climate and Non-Intellectual Climate, correlated .54, no meaningful conclusions could be drawn about either. Similarly, methodological problems also made interpretation of changes as a function of college experience impossible, since changing admissions policies at Adelphi confounded the study of change over time with a cross-sectional approach.

The three intellective variables under consideration, SAT-V, SAT-Q and GPA, produced a series of significant results. Females scored higher than Males on SAT-V and GPA, while Males were higher on SAT-Q. Sophomores scored higher than Juniors and Seniors on both SAT scores, and Freshmen higher than Juniors and

Seniors on SAT-Q, but there were no class differences on GPA. These class differences were considered artifactual, however, due to changes in the compositon of the Adelphi entering class over the past few years.

Students who had graduated in the first quartile of their high schools scored higher than all other students on all three intellective variables. Students from the second quartile scored higher than those from the fourth quartile on both SAT scores, but not on GPA. These results suggested the value of selecting students from the first quartile, and the diminishing value of using high school rank as a selection index beyond the first quartile.

Science majors received the highest SAT-Q scores of all majors, and Humanities majors the highest SAT-V scores. These two groups, Science and Humanities majors also earned the two highest GPA. Business majors had the lowest SAT-V score and also the lowest GPA. Students who were Undecided as to major area were relatively high on their SAT scores, but low on GPA, with the possibility existing that their indecision adversely affected their academic progress.

Methodological problems with the measuring instruments, the sample characteristics, and initial class differences vitiated a number of the findings in this research project. The suggestion was advanced that future work in this area utilize a longitudinal approach and more brief and more adequate measuring instruments.

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APPENDIX 1

LETTER TO STUDENTS FROM THE DEAN REQUESTING THEIR COOPERATION

November 7, 1963

Dear Adelphian:

I am writing to enlist your assistance and cooperation in helping us with a study currently being conducted under the direction of Dr. George Stricker of our Psychology Department. As many of you know, Adelphi has recently received a grant from the U.S. Office of Education for the purpose of studying college environment, with emphasis on student activities and attitudes. Adelphi is honored in having been awarded this grant; however, the successful completion of this project rests upon your cooperation.

Those of you who have already completed these forms need not resubmit them and you are asked to disregard this letter.

Enclosed in this packet is one copy each of the Student Activities Index and the College Characteristics Index, along with an answer sheet for each one. Instructions are on the face of each Index. I would like you to begin with the Activities Index, answering each question in order by blackening the appropriate space on the answer sheet, and then go on to the College Characteristics Index, again blackening the appropriate space on its separate answer sheet. Please remember to fill in all the information requested on the answer sheets. The entire task should take about an hour of your time.

As in any research project, your answers will be kept confidential and will not be used outside this study. Because of the importance of this project I have agreed to cooperate with Dr. Stricker to the extent of writing you this letter. Please do not return your answers to me but rather to the Office of the Psychology Department, Room 203, Alumnae Hall or to the Main Lobby, Levermore Hall prior to Friday, November 22nd.

Thank you for your assistance.

Sincerely,

William J. Condon
Dean of Students

APPENDIX 2

RESPONDENTS GROUPED ACCORDING TO MAJOR AREA OF STUDY

Subgroup	Major Area					
	Humanities	Science	Arts	Social Sciences	Business	Undecided
Freshman males	22	58	4	20	26	19
Freshman females	42	36	28	87	4	27
Freshman total	64	94	32	107	30	46
Sophomore males	12	21	1	5	8	10
Sophomore females	20	11	7	30	0	10
Sophomore total	32	32	8	35	8	20
Junior males	19	18	2	12	19	2
Junior females	19	11	11	32	4	0
Junior total	38	29	13	44	23	2
Senior males	20	20	4	12	11	0
Senior females	26	14	16	31	4	0
Senior total	46	34	20	43	15	0
Total males	73	117	11	49	64	31
Total females	107	72	62	180	12	37
Total	180	189	73	229	76	68

APPENDIX 3

RESPONDENTS GROUPED ACCORDING TO HIGH SCHOOL QUARTILE

Subgroup	Quartile 1	 2	 3	 4
Freshman males	43	90	13	2
Freshman females	92	101	13	2
Freshman total	135	191	26	4
Sophomore males	12	28	12	4
Sophomore females	45	28	4	1
Sophomore total	57	56	16	5
Junior males	16	25	22	5
Junior females	37	27	9	2
Junior total	53	52	31	7
Senior males	17	30	14	6
Senior females	48	25	8	4
Senior total	65	55	22	10
Total males	88	173	61	17
Total females	222	181	34	9
Total	310	354	95	26

APPENDIX 4

RESPONDENTS GROUPED ACCORDING TO MEMBERSHIP IN A FRATERNAL ORGANIZATION

Subgroup	Membership No	 Yes
Freshman male	---	---
Freshman female	148	76
Freshman total	148	76
Sophomore male	48	9
Sophomore female	46	36
Sophomore total	94	41
Junior male	57	15
Junior female	27	50
Junior total	84	65
Senior male	54	13
Senior female	46	45
Senior total	100	58
Total male	159	37
Total female	267	203
Total	426	240

APPENDIX 5

RESPONDENTS GROUPED ACCORDING TO RESIDENCE STATUS

Subgroup	Place of residence Home	 Dormitory	 Off-campus
Freshman male	96	45	8
Freshman female	130	49	45
Freshman total	226	94	53
Sophomore male	48	5	4
Sophomore female	52	19	7
Sophomore total	100	24	11
Junior male	64	5	3
Junior female	55	16	6
Junior total	119	21	9
Senior male	60	3	4
Senior female	73	8	10
Senior total	133	11	14
Total male	268	58	19
Total female	310	92	68
Total	578	150	87

APPENDIX 6

CORRELATION MATRIX FOR FRESHMAN MALES AND FEMALES[a]

	AI 1	AI 2	AI 3	AI 4	CCI 1	CCI 2	SAT-V	SAT-Q
AI 1		-.05	.45**	.63**	.17*	.09	.14	.17*
AI 2	-.07		-.34**	.70**	.27**	.17*	-.25**	-.21**
AI 3	.36**	-.36**		-.02	-.09	.17*	-.07	-.08
AI 4	.69**	.63**	-.03		.32**	.17*	-.09	.00
CCI 1	.17*	.27**	-.01	.31**		.46**	.09	.00
CCI 2	.13	.05	.27**	.13*	.27**		-.07	-.02
SAT-V	.10	-.14*	-.05	-.02	.02	-.16*		.48**
SAT-Q	.17*	.02	.00	.15*	.09	-.03	.46**	

[a] Coefficients above the diagonal are for males; those below the diagonal are for females.

$^{*}p \leq .05$

$^{**}p \leq .01$

APPENDIX 7

CORRELATION MATRIX FOR SOPHOMORE MALES AND FEMALES[a]

	AI 1	AI 2	AI 3	AI 4	CCI 1	CCI 2	SAT-V	SAT-Q	GPA
AI 1		.19	.42**	.79**	.23	.34**	-.06	.17	-.02
AI 2	-.02		-.32*	.71**	.16	.13	-.13	-.23	.21
AI 3	.34**	-.21		.03	.05	.16	-.27*	.05	-.24
AI 4	.68**	.66**	.01		.26*	.32*	-.05	.02	.19
CCI 1	-.04	.27*	.26*	.10		.71**	.07	.02	-.07
CCI 2	.10	.24*	.33**	.21	.58**		.06	.00	-.14
SAT-V	-.05	-.19	-.23*	-.17	-.15	-.25*		.58**	.37**
SAT-Q	.08	.05	.01	.10	.05	-.13	.38**		.45**
GPA	.04	-.21	-.20	-.10	-.32**	-.37**	.43**	.39**	

[a] Coefficients above the diagonal are for males; those below the diagonal are for females

$^{*}p \leq .05$

$^{**}p \leq .01$

APPENDIX 8

CORRELATION MATRIX FOR JUNIOR MALES AND FEMALES[a]

	AI 1	AI 2	AI 3	AI 4	CCI 1	CCI 2	SAT-V	SAT-Q	GPA
AI 1		-.10	.56**	.64**	.18	.15	.06	.13	-.04
AI 2	.05		-.32**	.65**	.09	.18	-.24	.04	.34**
AI 3	.08	.01		.09	.08	.28*	-.05	-.20	-.19
AI 4	.73**	.65**	-.08		.20	.24*	-.14	.22	.24
CCI 1	-.07	.20	.11	.07		.41**	-.07	.02	.07
CCI 2	-.12	.22	.18	.07	.50**		-.17	-.09	-.06
SAT-V	.07	-.22	-.35**	-.04	-.15	-.30**		.30*	.26*
SAT-Q	.22	.03	-.40**	.22	-.17	-.20	.53**		.35**
GPA	-.03	-.06	-.26*	.02	-.03	-.13	.56**	.34**	

[a] Coefficients above the diagonal are for males; those below the diagonal are for females

$^{*}p \leq .05$

$^{**}p \leq .01$

APPENDIX 9

CORRELATION MATRIX FOR SENIOR MALES AND FEMALES[a]

	AI 1	AI 2	AI 3	AI 4	CCI 1	CCI 2	SAT-V	SAT-Q	GPA
AI 1		-.07	.53**	.70**	.24*	.09	.26*	.14	.01
AI 2	.33**		-.27*	.61**	.15	.33**	-.23	-.06	.04
AI 3	.22*	.07		.14	.22	.15	.04	.00	-.04
AI 4	.83**	.76**	.11		.26*	.26*	.02	.07	.08
CCI 1	.27**	.40**	.09	.42**		.57**	-.11	-.09	-.09
CCI 2	.27**	.35**	.29**	.38**	.47**		-.19	-.11	-.17
SAT-V	.05	-.31**	-.15	-.14	-.17	-.17		.53**	.26*
SAT-Q	-.10	-.11	-.20	-.10	-.13	-.18	.49**		.33**
GPA	.23	-.09	-.04	.12	-.03	-.05	.53**	.42**	

[a] Coefficients above the diagonal are for males; those below the diagonal are for females

* p ≤ .05

** p ≤ .01

APPENDIX 10

SUMMARY OF SEX X CLASS X MAJOR ANALYSES OF VARIANCE INVOLVING ACTIVITIES INDEX SCORES

		AI 1		AI 2		AI 3		AI 4	
Source	dF	ms	F	ms	F	ms	F	ms	F
A (Sex)	1	12,800.00	24.15**	4148.09	8.46**	1422.22	2.42	85.59	-----
B (Class)	3	918.47	1.73	517.98	1.06	1813.23	3.09*	907.55	1.98
C (Major)	2	1,395.80	2.63	1940.45	3.96*	3577.61	6.09**	3193.95	6.97**
AB	3	112.97	-----	262.43	-----	1268.54	2.16	420.63	-----
AC	2	355.64	-----	592.63	1.21	991.46	1.69	47.42	-----
BC	6	261.93	-----	406.62	-----	408.14	-----	233.00	-----
ABC	6	953.46	1.80	283.82	-----	959.16	1.63	765.69	1.67
w cells	264	529.97		490.07		587.44		458.22	
Total	287								

$^{*}p \leq .05$

$^{**}p \leq .01$

APPENDIX 11

SUMMARY OF SEX X CLASS X MAJOR ANALYSES OF VARIANCE INVOLVING COLLEGE CHARACTERISTICS INDEX SCORES

		CCI 1		CCI 2	
Source	df	ms	F	ms	F
A (Sex)	1	660.05	1.01	.68	-----
B(Class)	3	51,514.81	78.70**	19,714.65	51.50**
C(Major)	2	187.64	-----	1.39	-----
AB	3	1,149.59	1.76	416.40	1.09
AC	2	754.42	1.15	310.43	-----
BC	6	413.98	-----	515.99	1.35
ABC	6	1,367.26	2.09	437.00	1.14
w cells	264	654.59		382.82	
Total	287				

$^{**}p \leq .01$

APPENDIX 12

SUMMARY OF SEX X CLASS X MAJOR ANALYSES OF VARIANCE INVOLVING SCHOLASTIC APTITUDE TEST SCORES AND GRADE POINT AVERAGE

		SAT-V		SAT-Q		GPA	
Source	df[a]	ms	F	ms	F	ms	F
A (Sex)	1	70,250.00	9.58**	2,200.12	-----	62,216.01	28.51**
B (Class)	3	18,163.58	2.48	9,188.85	1.34	2,918.26	1.34
C (Major)	2	15,481.38	2.11	83,322.19	12.11**	12,198.22	5.59**
AB	3	2,274.25	-----	20,983.85	3.05*	1,664.80	-----
AC	2	585.88	-----	4,552.66	-----	4,428.08	2.03
BC	6	3,787.02	-----	9,892.88	1.44	2,541.89	1.16
ABC	6	4,288.89	-----	3,643.14	-----	657.19	-----
w cells	264	7,333.62		6,878.05		2,182.57	
Total	287						

[a] Because GPA was not available for the freshman class, the dfs for B, AB, BC, ABC, w cells and Total for GPA were 2, 2, 4, 4, 150 and 167.

* $p \leq .05$

** $p \leq .01$

APPENDIX 13

SUMMARY OF SEX X QUARTILE X CLASS ANALYSES OF VARIANCE INVOLVING ACTIVITIES INDEX SCORES

		AI 1		AI 2		AI 3		AI 4	
Source	df	ms	F	ms	F	ms	F	ms	F
A (Sex	1	8,681.11	16.46**	8,095.62	19.76**	1,298.65	2.17	114.38	-----
B (Quartile)	2	820.27	1.56	184.63	-----	849.63	1.42	601.79	1.32
C (Class)	3	2,002.90	3.80**	157.27	-----	1,150.54	1.92	1,372.89	3.00*
AB	2	197.40	-----	106.47	-----	182.16	----	1,110.73	2.43
AC	3	661.07	1.25	406.38	-----	435.68	----	1,192.30	2.61*
BC	6	538.27	1.02	324.37	-----	1,043.42	1.74	558.49	1.22
ABC	6	861.80	1.63	101.71	-----	531.74	----	316.93	-----
w cells	272	527.50		409.70		598.66		456.90	
Total	295								

*$p \leq .05$

**$p \leq .01$

APPENDIX 14

SUMMARY OF SEX X QUARTILE X CLASS ANALYSES OF VARIANCE INVOLVING COLLEGE CHARACTERISTICS INDEX SCORES

		CCI-1		CCI-2	
Source	df	ms	F	ms	F
A (Sex)	1	7,570.98	10.73**	2,076.54	5.23*
B (Quartile)	2	836.82	1.19	276.94	-----
C (Class)	3	30,699.69	43.49	13,508.12	34.01**
AB	2	282.07	-----	179.32	-----
AC	3	1,074.64	1.52	685.43	1.73
BC	6	612.39	-----	548.85	1.38
ABC	6	1,203.85	1.71	823.03	2.07
w cells	272	705.87		397.15	
Total	295				

*$p \leq .05$

**$p \leq .01$

APPENDIX 15

SUMMARY OF SEX X QUARTILE X CLASS ANALYSES OF VARIANCE INVOLVING SCHOLASTIC APTITUDE TEST SCORES AND GRADE POINT AVERAGE

		SAT-V		SAT-Q		GPA	
Source	df[a]	ms	F	ms	F	ms	F
A (Sex)	1	988.81	-----	169,059.06	24.36**	6,282.71	3.90*
B (Quartile)	2	131,277.81	22.03**	175,032.63	25.22**	61,290.23	38.01**
C (Class)	3	14,456.04	2.43	18,863.60	2.72*	4,962.17	3.08*
AB	2	2,211.53	-----	1,483.32	-----	447.61	-----
AC	3	2,479.81	-----	6,761.08	-----	577.36	-----
BC	6	6,832.26	1.15	7,027.44	1.01	3,681.39	2.28
ABC	6	5,408.87	-----	1,327.90	-----	3,018.53	1.87
w cells	272	5,959.95		6,941.21		1,612.27	
Total	295						

[a] Because GPA was not available for the freshman class, the dfs for C, AC, BC, ABC, w cells and Total for GPA were 2, 2, 4, 4, 204 and 221.

$^{*}p \leq .05$

$^{**}p \leq .01$